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ABSTRACT

The selection matrix is an attempt to provide an efficient, effective, and practical basis for selecting the instructional medium possessing more specific learner-situation-task attributes than others. The selection matrix provides three important capabilities by (1) identifying a number of appropriate media and isolating them, (2) reducing the identified number to a single most appropriate medium, and (3) assisting in planning. While there are other procedures for systematically selecting instructional materials, few offer the advantages associated with the selection matrix system; especially the fact that no equipment is required, although the process is compatible with computerized information storage and retrieval systems. (Author/CMV)

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THE MATRIX SYSTEM

A PRACTICAL BASIS FOR STIMULUS SELECTION

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The Matrix System:

A Practical Basis for Stimulus Selection

The educational community has slowly come to the realization that the traditional triad of teacher, textbook, and chalkboard is not capable of meeting the needs of today's learners. The producers of media have been quick to capitalize on this change of philosophy and are producing materials at an ever increasing rate. This proliferation of materials has brought about a dramatic change related to the selection problem--from having an insufficient number of instructional materials in the past, teachers have arrived at the point where surrounded by a plethora of materials they have a bewildering choice of which to use.

When instructional materials were limited, the selection process was relatively simple but procedures of the past are no longer applicable--particularly so as we move to increasing individualization of instruction. Selection procedures based on the idiosyncratic likes and dislikes of a teacher were not applicable in the past and are far less so today in an era of individualization and at a time when we move from "audiovisual aids" to "instructional materials" and all that the latter term implies.

These conditions accentuate one of the most pressing problems related to the employment of instructional materials as a natural, integral and indispensable part of the instructional process--the need to provide for the appropriate selection of a medium that will facilitate quality instruction.

Gagne alluded to the problems associated with media selection noting the need for careful consideration in choosing among the various available

media and further noting that: "The precise answer to 'which medium' is not to be found by matching courses with media, but rather in matching specific instructional functions with media."

Kemp's approach to media selection, although it considered media attributes, generally failed to incorporate other criteria necessary for a systematic selection process. Consequently, while it was a significant contribution it fell short of the total requirements for a media selection model.

Levie and Dickie incorporated other criteria stating that "the process of media selection may be usefully conceptualized as one of matching media attributes to task-learner-situation characteristics. The first question is not, 'What medium is appropriate for the given task-learner-situation?' but 'what media attributes are appropriate for the given task-learner-situation?' After the appropriate media attributes have been specified, the medium which incorporates these attributes is identified. If more than one medium is capable of providing the required attributes, the further choice may be made on the basis of pragmatic determinants such as cost." As useful as their work is, they too fail to provide a practical solution to the problem of systematic media selection.

While there is nearly universal agreement that a systematic process is needed to provide for the effective selection of media for a given instructional situation, until now there has not been a procedure that has proved practical in terms of processing the number of task-learner-situation and media attribute variables as they relate to common media options.

The need seems clear for a system which is capable of simultaneously

handling the many aspects of variability in a learning situation. Of necessity the model should:

1. Be easily understood, having few ambiguities while being simple to use.

2. Be readily accessible, low in cost and require a minimum of time during use.

3. Contain a representative number of media choices which are available to most classroom teachers.

4. Contain a reasonable sampling of crucial task-learner-situation-media and other constraint variables.

5. Make a selection on the basis of the interaction of all relevant variables, resulting in the identification of a medium or media possessing the required attributes for the intended instruction.

At first reaction, the computer would immediately come to mind as having the needed capabilities but this would fail to meet the cost-accessibility criteria specified above. What is then needed is another more practical alternative for providing an inexpensive and highly accessible selection process. One such process meriting consideration involves the construction and use of a decision matrix.

In the development of any such decision matrix the following would be necessary:

1. The initial decision requires the selection of representative media to be included. The number would vary, being dependent upon who was preparing the matrix, its purpose and the target population. A typical matrix would account for 36 to 100 media; each medium would be assigned a position on the matrix.

2. The second decision requires the identification and selection of variables deemed important by the person preparing the matrix. Among those would be task, learner characteristics, situation, media characteristics, environment, and practical constraint variables. After each variable is selected, it would be carefully defined since its definition is of critical importance

during the next step when each medium is classified as having or not having a given attribute as represented by that variable.

3. Once the list of media and variables with definitions to be included is finalized, the third task of classifying each medium in the matrix as having or not having a given attribute can be completed. The major element of concern for those responsible for the development of the matrix is an error in classification. Most "errors" would generally be "judgmental errors" resulting from any limitations of those making the classification.

4. The final task would be physically producing the selection matrix. This requires: preparation of a standard matrix form; assignment of included media to a position on the matrix (becoming a matrix key); preparation of a variable list with definitions; preparation of variable cards (using the standard matrix forms); determining whether a medium had or did not have a given attribute as represented by the variable; then recording this decision on the variable card by placing a dot at the center of the assigned square and finally punching holes in the center of each square on the matrix key as well as each recorded dot on each variable card. The completed selection matrix could then be assembled and used as a card sort as illustrated in diagrams one and two. Because of the nature of a card sort all media not capable of meeting the required criteria are eliminated from consideration. In the event that the resultant number of media meeting the criteria is too large for effective selection, additional variables will further reduce the number.

The selection matrix represents an attempt to provide an efficient, effective, and practical basis for selecting the instructional medium possessing more specific learner-situation-task attributes than others. The selection matrix will provide for three variations:

1. Identifying a number of appropriate media and isolating those from which a final selection can be made.

2. Reducing this number to a single item representing the most appropriate medium, e.g., the one having the relevant attributes.

3. Assisting planning by indicating that, based upon the selected variables, no medium can meet the requirements. Under this condition the matrix will facilitate a modification of variables so that selection can be made.

While there are undoubtedly other procedures for systematically

selecting instructional materials, few offer the advantages associated with the selection matrix system. Among these advantages is the fact that no equipment is required although the process is compatible with computerized information storage and retrieval systems and could easily be adapted for this if a situation warranted it.

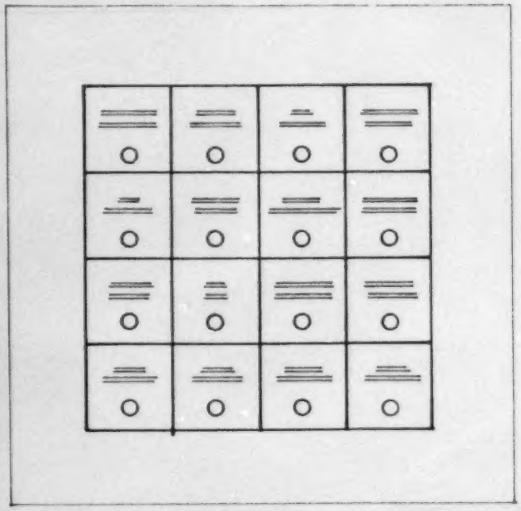
At all times the teacher is in command of the process, selecting the variables that he or she considers relevant and adding variables to reduce the number of media choices when applicable. No longer will the delivery system be an idiosyncratic decision based on personal preferences but rather one based on the relevant attributes related to the intended instruction.

Finally, the contribution of such a selection matrix could well result in a re-evaluation of current selection practices leading to the establishment of a sound basis for the selection and use of instructional materials as a natural, integral and indispensable part of the instructional process.

MASTER MATRIX KEY

BULLETIN BOARD ○	FLANNEL BOARD ○	STUDY PRINT ○	BOOK ○
SIMPLE VISUAL ○	OVERHEAD TRANSPAR-ENCY ○	FILMSTRIP TAPE ○	PROGRAMED INSTRUC-TION ○
REALIA MODELS ○	CAPTIONED FILMSTRIP ○	SLIDE / SOUND SET ○	SIMULATION ○
LECTURE ○	TAPE ○	FILM ○	FIELD TRIP ○

MASTER MATRIX KEY



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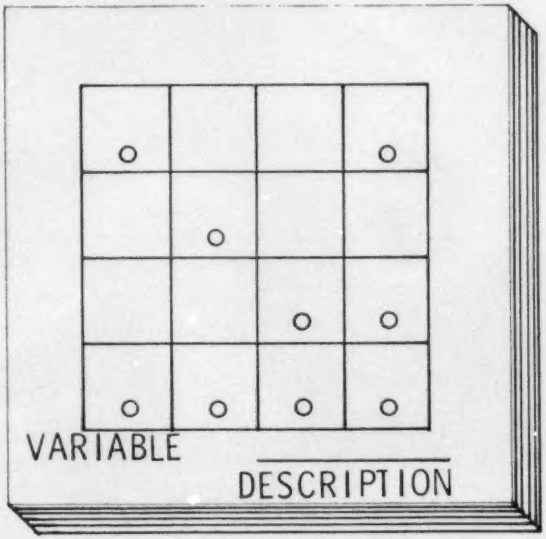

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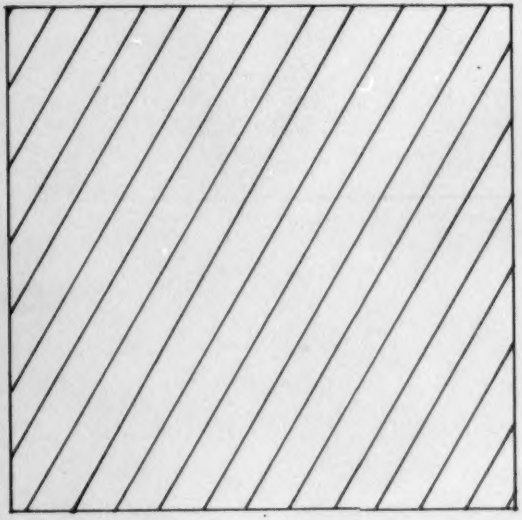
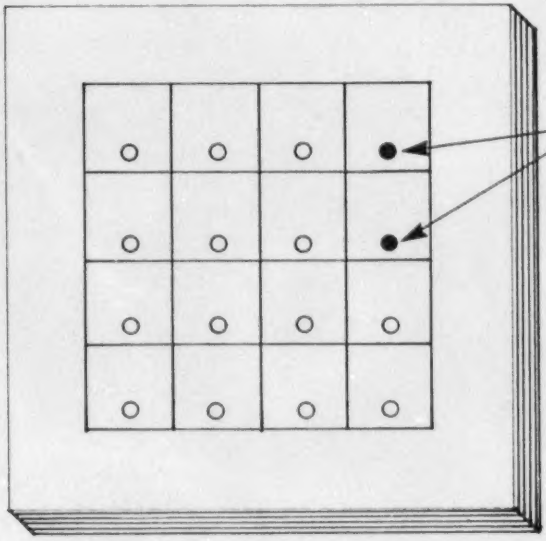


THE ASSEMBLED MODEL



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